

Claims

[c1] WHAT IS CLAIMED IS:

1. An adjusting device for camshafts of motor vehicles, comprising:

a stator having radial inwardly projecting stays;

a rotor having vanes projecting into spaces defined between the stays of the stator;

wherein the rotor is rotatable relative to the stator and

wherein the vanes of the rotor are loadable on opposed sides with a pressure medium;

wherein the rotor is lockable relative to the stator in a locked position, wherein the stator has at least one locking bore and wherein the rotor has a locking element having a locking position in which the locking element engages the locking bore and locks the rotor in the locked position; and

wherein the locking element is moveable by the pressure medium from the locking position into a release position.

[c2] 2. The adjusting device according to claim 1, further comprising a locking disk fastened on the stator, wherein the locking bore is provided in the locking disk.

- [c3] 3. The adjusting device according to claim 1, wherein the locking bore is elongate in a rotational direction of the rotor.
- [c4] 4. The adjusting device according to claim 1, wherein the locking element has an end face facing the locking bore and wherein the end face is loaded by the pressure medium.
- [c5] 5. The adjusting device according to claim 1, wherein the locking element is movable against a counterforce out of the locking position into the release position.
- [c6] 6. The adjusting device according to claim 5, further comprising at least one pressure spring generating the counterforce.
- [c7] 7. The adjusting device according to claim 1, wherein the locking element is a hollow piston.
- [c8] 8. The adjusting device according to claim 1, wherein the locking element is arranged to be slidable within a bore provided in a first one of the vanes of the rotor.
- [c9] 9. The adjusting device according to claim 1, wherein the locking element has an end positioned in a bore of the first vane of the rotor, wherein the end of the locking element has an annular piston surface loadable by the

pressure medium.

- [c10] 10. The adjusting device according to claim 9, wherein the end of the locking element has a radially outwardly oriented flange and wherein the annular piston surface is provided on the radially outwardly oriented flange.
- [c11] 11. The adjusting device according to claim 9, wherein the vanes separate the spaces into a first pressure chamber and into a second pressure chamber, respectively, wherein the annular piston surface delimits axially an annular chamber, wherein the annular chamber is connected by a first supply groove to the first and second pressure chambers of the stator.
- [c12] 12. The adjusting device according to claim 11, wherein the first supply groove is closed by the first vane of the rotor in the release position of the locking element.
- [c13] 13. The adjusting device according to claim 11, wherein the first supply groove is provided in the locking disk.
- [c14] 14. The adjusting device according to claim 11, wherein a second supply groove opens into the at least one locking bore and connects the at least one locking bore with the first and second pressure chambers of the stator.
- [c15] 15. The adjusting device according to claim 14, wherein

the second supply groove is closable by the first vane of the rotor in the release position of the locking element.

[c16] 16. The adjusting device according to claim 1, wherein the locking element is arranged to be slidable within a bore provided in a first one of the vanes of the rotor, wherein at least one of the spaces, neighboring the space where the first vane of the rotor is arranged, has at least two throttles for reducing a rotational speed of the rotor shortly before the locking element engages the at least one locking bore.

[c17] 17. The adjusting device according to claim 16, wherein the throttles are throttle grooves connecting a supply of the pressure medium with the at least one of the spaces.